IN THE CLAIMS:

Please AMEND claims 1-15 as follows.

1.　(Currently Amended)　A system for recognizing a shape of a staircase or other polyhedron based on an image input from photographic means, comprising:

at least one camera as the photographic means,;

region selection means for selecting a predetermined region to be processed further for detailed analysis within the image photographed by the at least one camera,;

processing region setting means for obtaining a range image from the image obtained by the at least one camera and for setting a processing region upon the obtained range image based on the selected region,; and

polyhedron shape recognition means for recognizing the shape of theone or more polyhedrons based on the range image within thea set candidate range.

2.　(Currently Amended)　A system according to claim 1, wherein the photographic means comprises at least two cameras, and the region selection means is configured to selects the predetermined region within the image photographed by one of the at least two cameras, and the processing region setting means is configured to obtains the range image from the image obtained stereoscopically from the at least two cameras.

3.   (Currently Amended) A system according to claim 1, wherein the region selection means is configured to extracts groups of line segments that are longer than a predetermined length from within the photographed image, and to selects the predetermined region based on positions of the extracted groups of line segments.

4.   (Currently Amended) A system according to claim 3, wherein the region selection means is configured to selects the predetermined region based on the positions of groups of line segments that are parallel to each other within the extracted groups of line segments, wherein theand that are groups of line segments that are sufficiently close in distance.

5.   (Currently Amended) A system according to claim 1, wherein the polyhedron shape recognition means is configured to extracts sets of points constituting the range image within the processing region as sets of range data in a three-dimensional space and to recognizes the shape of said polyhedron based on the extracted sets of points.

6.   (Currently Amended) A system according to claim 5, wherein the polyhedron is a staircase and the polyhedron shape recognition means are configured to assumes the extracted set of points to be an inclined plane, and to recognizes the shape of said staircase by finding an approximate plane.

7.   (Currently Amended) A system according to claim 5, wherein the polyhedron is a staircase and the polyhedron shape recognition means is configured to sections the extracted set of points along vertical planes, and to recognizes the shape of the staircase based on an error between the sets of points on the cross-sectional planes and a two-dimensional model.

8.   (Currently Amended) A method of recognizing a shape of a staircase or other polyhedron based on an image input from at least one camera, comprising the steps of:

(a) selecting a predetermined region within the image photographed by the at least one camera,;

(b) obtaining a range image from the image obtained by the at least one camera and setting a processing region upon the obtained range image based on the selected region, and

(c) recognizing the shape of theone or more polyhedrons based on the range image within thea set candidate range.

9.   (Currently Amended) A method according to claim 8, wherein the step (a) selectsselecting further comprises selecting the predetermined region within the image photographed by one of at least two cameras, and the step (b) obtainsobtaining further

- 4 -

comprises obtaining the range image from the image obtained stereoscopically from the at least two cameras.

10.   (Currently Amended) A method according to claim 8, wherein the step (a) extractsextracting further comprises extracting groups of line segments that are longer than a predetermined length from within the photographed image, and selectsthe selecting further comprises selecting the predetermined region based on positions of the extracted groups of line segments.

11.   (Currently Amended) A method according to claim 10, wherein the step (a) selectsselecting further comprises selecting the predetermined region based on the positions of groups of line segments that are parallel to each other within the extracted groups of line segments, wherein theand that are groups of line segments that are sufficiently close in distance.

12.   (Currently Amended) A method according to claim 8, wherein the step (c) extractsextracting further comprises extracting sets of points constituting the range image within the processing region as sets of range data in a three-dimensional space and recognizesthe recognizing further comprises recognizing the shape of said polyhedron based on the extracted sets of points.

13.   (Currently Amended) A method according to claim 12, wherein the polyhedron is a staircase and ~~the step (c) assumes~~ the extracted set of points is assumed to be an inclined plane, and ~~recognizes~~the recognizing further comprises recognizing the shape of said staircase by finding an approximate plane.

14.   (Currently Amended) A method according to claim 12, wherein the polyhedron is a staircase and ~~the step (c) sections~~ the extracted set of points is sectioned along vertical planes, and ~~recognizes~~the recognizing further comprises recognizing the shape of the staircase based on an error between ~~the~~ sets of points on ~~the~~ cross-sectional planes and a two-dimensional model.

15.   (Currently Amended) A computer program embodied on a computer-readable medium for recognizing shape of a staircase or other polyhedron based on an image input from at least one camera, the program configured to control a processor to perform a process, the process comprising ~~the steps of~~:

~~(a)~~ selecting a predetermined region within the image photographed by the at least one camera~~,~~;

~~(b)~~ obtaining a range image from the image obtained by the at least one camera and setting a processing region upon the obtained range image based on the selected region~~,~~; and

(c) recognizing the shape of ~~the~~<u>one or more</u> polyhedrons based on the range image

within ~~the~~<u>a</u> set candidate range.